

OSTRANDER

AN INAUGURAL DISSERTATION
ON PUERPERAL FEVER

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Valentine M.

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SUBMITTED TO THE PUBLIC EXAMINATION OF THE
FACULTY OF PHYSIC

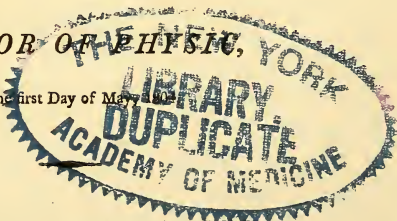
UNDER THE AUTHORITY OF THE TRUSTEES OF COLUMBIA COLLEGE,
IN THE STATE OF NEW-YORK,

The Right Rev. BENJAMIN MOORE, D.D. President;

FOR THE DEGREE OF

DOCTOR OF PHYSIC,

On the first Day of May 1804



BY EZEKIEL OSTRANDER,
Citizen of the State of New-York.

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TO

DAVID HOSACK, M. D.

Professor of Botany in Columbia College, Member of
the Linnæan Society of London, and of the
Royal Medical and Physical Societies
of Edinburgh, &c. &c.

THIS DISSERTATION

Is respectfully inscribed.

INTRODUCTION.

THERE is no disease in the catalogue of human calamities upon which physicians have entertained such opposite opinions as that which is the subject of this Dissertation.

Some consider it a disease of great exhaustion and putridity, and frequently contagious; while others believe it to be an inflammatory fever. From the influence of these two opinions, it must appear that its treatment varies with different persons. Those who adopt the idea of putridity believe that tonics and antiseptics are the only remedies calculated to give the patient any chance of recovery; while those whose speculations are drawn from observation less exceptionable, trust to the efficacy of depleting remedies, carried to a greater or less extent, as the necessity of the case may require.

From the slightest observation of the theories of this disease, founded upon the above-mentioned opinions, it would appear that the facts upon which they are built were taken by different men at different periods.

All febrile diseases, in their commencement, are attended with increased action; and the prominent

features of this complaint are not essentially different from other fevers: therefore, judging from the symptoms of its accession, it certainly would appear inflammatory. Again, if we suffer the inflammatory symptoms which characterize its invasion to progress without using any means to obviate their violence, the state of exhaustion, indirect debility, or collapse, must follow of consequence. Now, discarding the inflammatory symptoms, which are comparatively of short continuance, and judging from observation taken at this period of the disease, the opinion of its being a disease of exhaustion would appear just.

The term putridity, as applied to fevers, is, in my opinion, very improper, and ought to be wholly exploded from medical writings; since it is a known fact, that the putrefactive process cannot take place in animate matter.

It is remarked by some authors who have treated of this disease, that it is, under certain circumstances, contagious; by others, that it is always the product of contagion operating upon a system predisposed to this disease by the pregnant and parturient states. The latter of these opinions, however, I am inclined to disbelieve, since we see so many sporadic cases of Puerperal Fever, in both city and country, originating from the local situation of the place in which the patient resides, or from mal-treatment either during pregnancy or parturition, and where no circumstance has occurred which could possibly favour the idea of a conta-

gious origin. But that the former opinion is correct, viz. that this disease is liable to become contagious under certain circumstances, is evident from the following occurrence, related by Dr. THOMAS YOUNG, Professor of Midwifery in the University of Edinburgh; who observes, that this fever was unknown for many years in the lying-in ward of the Royal Infirmary at Edinburgh; but that, after it was first accidentally introduced into the hospital, almost every woman was seized with it immediately after delivery. He likewise remarks, that it was only eradicated from the hospital in consequence of the wards being entirely cleared, and thoroughly cleansed and ventilated. This, and various other circumstances attached to yellow fever and dysentery, are calculated to illustrate the following doctrine of contagion, viz. that all contagious diseases are originally generated by the combination of certain causes operating upon the human system; and that the different modifications or variations of those causes will produce a peculiar action in the arterial system, which shall secrete a matter in some form or other, depending on the properties of the stimulus applied; capable, by inoculation, or through the medium of the atmosphere, to communicate the same disease, and by this means continue its propagation. Also, since lues venerea, small-pox, scarlatina, &c. are all more violent and mortal in certain constitutions of the atmosphere, and even that some of them are generated annually, and every three or four years, in

certain seasons, by means of those causes. May we not, then, with the utmost propriety, conclude that all contagious diseases are originally thus produced, and that they are consequently liable to be again generated anew, in any climate or situation which is calculated to produce those materials which first gave origin to this class of diseases? Most clearly we may; and while the human race are increasing in number, large cities augmenting, and filth and nuisance accumulating, the virulence of all diseases will be increased, their number enlarged, those that are already contagious will become more so, and those that have not been marked with contagion will, in all probability, assume a contagious character.

AN
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THAT period of time which intervenes between the birth of a child and the restoration of health is termed the puerperal state; and the occurrence of fever during this period has given origin to the name of Puerperal Fever.

By this disease I would wish to be understood as meaning that febrile affection, the predisposing cause of which may be wholly imputed to the pregnant state; thus rendering the definition of this disease, which is the subject of my dissertation, more correct.

The *history* of this disease, as laid down by the most celebrated authors who have treated on the subject, appears to be essentially the same, notwithstanding they have differed very materially on the causes which produce it, and on its method of treatment.

There is no particular period after delivery in which this fever uniformly makes its appearance; it, however, most frequently commences about the third or fourth day, though sometimes not until three or four weeks after parturition.

The symptoms which are indicative of the existence or commencement of this disease vary in proportion to the predisposition of the patient, and the operation of the usual occasional causes. It, however, like all other fevers, generally commences with a sensation of cold, succeeded by heat, thirst, and a frequent pulse, which will convey to the touch a corded sensation, indicative of a high degree of membranous inflammation. This, however, is by no means universally the case; but, on the contrary, it commences gradually, and evidences itself by disagreeable sweats, with nausea and vomiting, attended with looseness of the bowels. Neither is the corded pulse a constant attendant, for although it may be frequent, it will be very weak, and denote a great exhaustion of sensorial power in the whole system, as is usual in inflammation of the stomach and small intestines. As the disease advances, the whole abdomen becomes affected, the patient complains of wandering pains, which soon become fixed in the hypogastrium, where a swelling and exquisite tenderness ensue. She likewise feels great pain in the back, head, loins, hips, frequently extending down the thighs, with a frequent desire to micturate, accompanied with pain, and the evacuation

of a very small quantity of urine, which is generally remarkably turbid. The abdomen is always more or less swelled, and sometimes enlarged in size nearly equal to what it was previous to delivery, so that she can scarcely lie in any position except on her back, or on one side, with her body incurvated. When vomiting is excited there is generally a dark-coloured matter ejected, apparently mixed with bile of a yellow or green colour, attended with a very bitter taste. Vomiting, however, is not always present in this disease, particularly in the first stage; but nausea, loathsomeness of the stomach, and an offensive taste in the mouth, will scarcely ever be wanting when this fever is completely formed. We sometimes meet with an instantaneous change in the lochia, which is frequently diminished and foetid, and sometimes totally suppressed: at other times it is not diminished in quantity, but generally appears more or less unnatural.

The secretion of milk is either suppressed or diminished: its appearance is usually very much changed, and its taste always altered. The stomach is so very irritable as to render the patient incapable of retaining any thing, except it be very cold or acid. Tenesmus and frequent stools also attend some cases; whilst, on the contrary, others will prove very costive, so much so as to render it extremely difficult to obtain any evacuation from the bowels.

The tongue is usually dry, and covered with a

whitish fur, which, as the disease advances, puts on a darker appearance, and extends itself throughout the whole mouth, giving even to the teeth and lips a very sordid appearance. At this period there is commonly a wildness to be observed in the countenance, with a flushed face, attended with a cough and difficulty of breathing.

The symptoms of inflammation, together with those of extreme irritability, will progress for a longer or shorter period of time, in proportion to the strength of the constitution of the patient, if not arrested by medical aid; after which the state of irremediable collapse, or what has been termed the typhoid or putrescent state, will commence and evidence itself by the following alarming and dangerous symptoms. The pulse becomes very weak and increased in frequency; a singultus supervenes; the miliary eruption which often attends this disease, and which, in the first instance, was imperceptible, now assumes a very alarming aspect, indicating that the system is labouring under a state of extreme debility; the patient becomes, by turns, sensible and delirious; the sphinctor muscles loose their contractile power; the urine and alvine discharges are evacuated involuntarily; which last are attended with a very offensive fætor, and some peculiarity in their appearance; they are also attended with an increase of pain previous to the evacuation, and momentary relief in consequence of the discharge; they are of a green or dark brown colour: large hard lumps will sometimes be

evacuated, which appear to have been confined in the intestines for some time previous to delivery. There is also a circumstance attending this stage of the disease, which, I believe, has been observed by no writers on this subject except Dr. DENMAN, who says, there is an erysipelatous tumour of a dusky red colour on the wrists, elbows, knees, and ancles, about the size of a shilling piece, and sometimes larger, which is noticed by him as a symptom very generally fatal; and he remarks also, that in those cases the disease has been found, by dissection, to have affected principally the uterus and its appendages.

Puerperal fever, in some patients, advances with great rapidity, and terminates their existence in a very short period. In others, it progresses more tardy, and preys upon the system for a number of weeks, before the patient falls a sacrifice to its ravages. There are some who have died in the first cold stage, others in twenty-four hours after their first seizure. It has, however, been asserted by some authors, that the eleventh day proved fatal to more women labouring under this disease than any previous or succeeding period. This doctrine of critical days, so much advocated by many, is, in my opinion, unfounded, and utterly unworthy of the least attention in the present state of medical science; the termination of all diseases being, sooner or later, in proportion to the action of the predisposing and immediately operative causes.

CAUSES.

These I have divided in the following manner:

1. Those which may occur during pregnancy.
2. Those which occasionally take place during parturition.
3. Those which generally produce this disease after delivery.

1. That class of society whose circumstances in life will not admit of any alteration in diet, regimen, or exercise, during pregnancy, but who are obliged to attend to their ordinary domestic concerns from necessity, generally pass through the pregnant, parturient, and child-bed states with less danger and disease than those females who are placed in more affluent circumstances.

In order to establish the truth of this assertion, we need only have recourse to the aborigines of this country, and the uncivilized inhabitants of southern Africa, whose savage manners have entailed upon the women the most servile and active employments, whose constitutions, thus invigorated by labour, and untainted by luxury, exempt them from a numerous train of diseases, which always, in civilized society, have accompanied the introduction of modern indolence and refinement.

The majority of diseases which are incident to women in the pregnant state, arise merely from the mechanical effect of the gravid uterus, and con-

sequently disappear after parturition, which is the only remedy calculated to remove them effectually. To enumerate all these would be going beyond the limits which I have prescribed for this dissertation. The principal part of those, however, which are the object of medical attention, I shall here barely enumerate, as causes tending to the production of fever after delivery. Vomiting, indigestion or loss of appetite, costiveness or collections of indurated fæces in the intestines, tenesmus, diarrhœa, stranguary, and dysenteric complaints; all which, if not removed or alleviated by proper treatment, will induce a dangerous degree of indirect debility, and render the patient more liable to the operation of febrile causes, thus laying a foundation for this malignant and frequently fatal disease.

But among those causes which, independent of the mechanical action of the gravid uterus, are operative in the production of this disease, may be classed the two extremes of undue indolence and exercise. The first has a tendency to induce a plethoric state of the system; the last produces such exhaustion as to render the patient incapable of undergoing the fatigues of child-birth. A diet more nourishing than the patient has been accustomed to, or less stimulating than that used in a state of health; living in an unhealthy atmosphere; and want of attention to cleanliness and proper cloathing for the season, may all be considered as causes predisposing to this disease.

2. Harsh and rude examination by the accou-

cheur, tending to excite inflammation; the violence done in preternatural labours, to the organs of generation and the neighbouring parts; the hasty and improper extraction of the placenta; the imprudent exhibition of stimulating drinks, and the use of various other artificial means to excite pains, and expedite the expulsion of the contents of the uterus, are also to be considered as predisposing causes.

3. Under this head may be enumerated all those causes which originate from the mismanagement of the patient after delivery, in those cases where she has passed through the pregnant and parturient states without experiencing any untoward symptoms of disease. Formerly it was the practice (and I am sorry to observe that the treatment is now not altogether abandoned) to give patients large quantities of vinous drinks; and even those who had scarcely ever tasted of spirituous liquors were obliged to drink almost to intoxication during and immediately after delivery, in order, as was said, to strengthen them, and promote their speedy recovery from the exhaustion produced in consequence of parturition; no fresh air was admitted into their apartments; the doors and windows of their chambers were closed. In this situation they were confined, loaded with bed-clothes, for a number of days, destitute of a healthy atmosphere, labouring under increased excitement in consequence of the application of stimuli administered. The patients were placed in a horizontal position, the lochial

discharge was impeded, which, of consequence, accumulated in the uterus and folds of the vagina; there became acrid, and operated as an extraneous stimulating material, excoriating and inflaming the parts, and consequently preventing the natural secretion of it from the uterus. The retention of that material which was intended by nature to be secreted from the system, together with that lodged in the vagina and uterus, in addition to the maltreatment above mentioned, were all so many exciting causes of puerperal fever.

It notwithstanding often happens in cases where there is no cause for complaint respecting the treatment, that patients will be attacked with this disease, which must be referred to the operation of atmospheric influence in those seasons of the year when epidemic fevers prevail. In the autumn of 1803, and every other year when the principal towns in America were visited with yellow fever, it was remarked that many parturient women in those towns were seized with this disease, which put on a very alarming appearance, and proved fatal to the greatest proportion of them.

I need not here insert the numerous instances related by medical authors of the fatal ravages committed by this disease in lying-in wards of European hospitals, particularly those crowded with patients.

When we come to examine the climate, soil, and situations of those countries and places where

puerperal fever, plague, yellow fever, dysentery, bilious remitting and intermitting fevers rage epidemically, we will generally find their soil low, marshy, and wet, or that a large proportion of the surface of the earth is covered with water; the climate will commonly be hot, the falls of rain frequent and copious, and the atmosphere consequently loaded with moisture. In large cities, where filth accumulates annually, where the sun's rays are powerful, and the process of animal and vegetable putrefaction is most general, and consequently producing the greatest extrication of pestilential vapour, we find fevers of the most malignant character. Hence we account for the greater prevalence of puerperal fever in these places than in the open country. An atmosphere analogous to this may be generated in an hospital ward, where the nurses do not pay strict attention to cleanliness and ventilation. The morbid operation of a depraved atmosphere upon the puerperal system is, in my opinion, very obvious. The deprivation of a sufficient quantity of oxygenous air must undoubtedly augment the irritability of a person who is already in a very irritable state, induced by parturition, or any of the preceding causes; and it is not improbable, that some of these noxious materials may be mixed with the saliva, and being swallowed, generate disease in the stomach and bowels, or aggravate that which is already existing. The application of this putrid and moist vapour to the surface of the body may evidence itself in the sup-

pression or diminution of perspiration, or some of the other secretions; as an increase of the temperature of the human body is the most prominent symptom of fever, which cannot take place without a diminution or suppression of some of the discharges by which the heat escapes from the system. The suppression of perspiration, or of any other secretion, or the retention of any of those materials which nature intended should be discharged from the system as excrementitious, must operate as a local stimulant on the part where they are deposited, and, of course, produce increased action in the sanguineous system, and consequent inflammation on those parts which were previously in a state of the greatest irritability. Does not the uterus, and adjacent parts which have participated of the effects of pregnancy and parturition, possess the greatest share of this morbid sensibility? Most certainly. How easy is it then to account for the inflammation and its consequences, gangrene and mortification, of those parts situated in the pelvis and abdomen of persons who have died of this disease? I conclude, therefore, by asserting, that a concurrence of more or less of the causes enumerated is always productive of this disease.

CURE.

All causes of disease applied to the human system will, in the first place, produce their effects locally, which local affection will communicate disease sympathetically to the whole system. The local affections will be in different parts of the body, depending on the different degrees of irritability of those parts, the various causes applied, and the condition of the parts to which they are applied. The effects produced upon the system by the application of morbid matter will vary according to the various constitutions, temperaments, and idiosyncrasies of the patients. If they be previously debilitated by any cause or causes whatever, the exciting stage, which takes place in a greater or less degree at the commencement of all fevers, will be less violent, and this excitement will always be inversely proportionate to the state of existing debility. This circumstance in particular ought to be carefully observed and strictly attended to in this form of fever, that we may regulate our prescriptions accordingly. Thus it will be found, that the exciting stage of this disease, in plethoric women, will assume an alarming appearance; while, in debilitated habits, the danger of congestion, from increased action, will be much less. In the one case we may carry our depleting treatment to a greater extent; while, in the other, great caution is requisite in the admi-

nistration of evacuants, that we may not extend it too far, and thereby reduce our patient to an irrecoverable state of debility.



INDICATIONS.

1. To reduce the excitement of the system, and to restore the usual evacuations.

2. To guard the patient against the dangers of a relapse, as far as that circumstance shall depend upon the application of the original causes, and give tone to the system.

The first indication may be answered by,

1. Blood-letting;
2. Alvine evacuations;
3. The restoration of the perspirable discharge;
4. Blisters; and,
5. Warm bathing and fomentations.

Authors have differed very materially on the subject of blood-letting in this disease: many have contended for the propriety of it, while some have reprobated the practice, and entirely proscribed the use of the lancet: but I apprehend that this difference of opinion has arisen from the various appearances of the disease at different times; it being well ascertained that the exciting stage occupies comparatively a short period of time, and the disease occurs under such circumstances, that the physician has not always an opportunity of witnessing its first in-

vasion. But in the present state of the obstetric art, blood-letting is pretty generally admitted as an essential point of practice; the good effects of which will appear obvious from the following considerations, viz. The prevention of universal indirect debility, which is always the product of high excitement in the sanguineous system; for, by diminishing the quantity of blood, we decrease the velocity and the volume of blood to the inflammatory part, thereby allowing or exciting the turgid vessels of the inflamed part to contract and unload their contents, and, of course, prevent consequent gangrene or mortification. It is a point universally admitted, that blood-letting fits the system for the after operation of cathartic or diaphoretic medicine, and blisters are of the most essential service when preceded by venesection; and from our own observation, we know that it is infinitely more difficult to induce perspiration in persons who have not been previously bled than those who have; that it is almost impossible to have the full effect of usual doses of medicine, without engendering an aggravation of the disease from the stimulant power of the remedy, unless preceded by loss of blood. The truth of this last observation will appear obvious when we consider the manner in which medicines become operative. They are all cathartic or emetic, in proportion to the stimulus impressed upon the intestines or the stomach. Now, the stimulant power of any agent will show itself more or less in the increased action of the arterial system.

This action, in the exciting stage of fevers, is already inordinate, and an attempt to allay this arterial tumult, by the exhibition of active cathartics, independent of blood-letting, will very generally be found abortive. It is true, that the depletion occasioned by large doses of medicine may be as complete in the issue as that arising from the subduction of any indefinite quantity of blood; but the effects of this depletion will be vastly different upon the system, in as much as the debility in the one case arises from excess of stimulus, while, in the other, the exhaustion produced, unless carried beyond a certain degree, is nothing more than a deprivation of inflammatory action.

The second mean by which to accomplish the first indication will be the administration of cathartic medicine, which will answer the double purpose of subducting a part of the circulating mass of fluids, at the same time that it carries off all crude, indigested, noxious, or irritating materials that might have been lodged in the intestines, there tending to produce an aggravation of the disease. But in the selection of remedies calculated for this purpose great caution is requisite, since they may differ very materially in the ultimate effect of their operation; some answering both the above-mentioned purposes, without producing any inconvenience afterwards; whilst others, from their drastic operation, act as highly irritating powers applied to parts preternaturally excited, and during their action producing partial or local affections,

very difficult to remove. The remedies best calculated to answer the above purposes, without hazarding any injurious consequences, will be found to be the neutral salts, and the *olium ricini*. Of the first, those which have a superabundant quantity of alkali, united with an acid, which can easily be disengaged in the stomach, are to be preferred. The propriety of administering such salts will appear from the following considerations: In affections of the stomach there is reason to believe that an inordinate degree of acidity exists. This being admitted, it follows as a natural consequence, that in the administration of such medicine we are furnished with means to convert a cause of disease into a remedy for its cure. The remedy administered being easily separable into its component parts, the acid in the stomach will unite with the alkali of the neutral salt, forming another salt of great efficacy, and proving equally cathartic: the phosphate of soda, and the citrate of potash, from their composition, appear to be remedies extremely well adapted to the above purpose. And as it is of much importance that we guard against any disagreeable affection of the stomach and bowels, arising from the administration of a remedy, the *olium ricini*, which is a favourite medicine in this disease, should be perfectly free from any rancidity, void of that empyreuma which often attends it when drawn by heat; it should be obtained by expression, and without taste or smell. But since it often happens, from the continuance of

the disease for some days, that an opportunity is not afforded of administering the above-mentioned remedies on account of the debility then existing, we are obliged to have recourse to such means as shall not impair the strength of the patient in their operation. Of this kind are mild injections, which answer the purpose of evacuating the intestines, at the same time that they serve as fomentations to those parts which are most generally affected.

3. To produce perspiration, which we have laid down as a third method, and to diminish the excitement of the system, we know of nothing which promises more benefit than bathing in water suited to the temperature of the human body. In the application of this remedy we ought to be very particular in adapting the heat of the water to the excitement of the system. When the patient is labouring under a high degree of arterial action, in consequence of local inflammation, the bath should be a few degrees below that of the surface of the body; by which means we subduct heat, relax the exhalants of the skin, induce copious perspiration, and, of course, take off the determination to the inflamed part. If, however, circumstances should render it impossible for us to make use of the warm bath universally, it may be applied partially, in the form of fomentations, with the addition of plentiful dilution, which will be conducive to the same purpose.

The spiritus mindererus, united with liquid laudanum, has been made use of by physicians, in all

cases, to excite a discharge of perspirable fluid from the extreme arteries. This medicine, in my opinion, is not so advisable, in cases of this sort, as some other medicines hereafter to be noticed.

Another mean to effect the first indication is the use of emetics. The beneficial effects resulting from the exhibition of these must be evident to every practitioner, who considers the *modus operandi* of these medicines on the human system; they not only obviate the nausea and vomiting which is generally present in this disease, arising from the direct association existing between the stomach and the uterus, but produce general perspiration over the system, and, consequently, reduce the temperature of the body, remove from the stomach and upper intestines all acrid matters that may be accumulated; mechanically stimulate into action the stomach, liver, and pancreas, and thus promote the secretion of those fluids which are so essentially necessary in digestion, and in exciting the peristaltic motion of the intestines. The exhibition of this remedy is beneficial in all inflammatory diseases after blood-letting, in as much as nausea and vomiting are known to produce absorption and remove inflammation by resolution. In the use of emetics, we ought to be very careful in selecting those articles which operate with most ease and safety; such as antimonial wine, ipecacuanha, and tartarized antimony, united with prepared chalk, or any other absorbent earth. The latter is highly recommended by Dr. DENMAN in almost any stage

of the disease ; but whatever medicine we use, it is proper in those delicate states of the system to commence with small doses ; and if these do not produce any sensible evacuation, an increased quantity may be given after the expiration of a proper period, and repeated until the desired effect is produced ; after which, if the symptoms do not abate, we must not hesitate, at any time, to continue the repetition of them whilst the symptoms shall indicate their use. The combination of calomel and opium will be found very useful in this stage of the disease, after the use of evacuants. The opium will assist in allaying the irritability of the system ; the calomel will operate as a gradual and diffusible stimulant, and, given in small and repeated doses, produce evacuations from the bowels, increase perspiration, restore the discharge of the lochia, which had been suppressed, and accelerate the discharge from the salivary glands ; thus acting as a universal issue to the system, and, consequently, calculated to discuss inflammation in any part of it.

4. If the pain, swelling, and tenderness of the abdomen do not yield to the remedies heretofore mentioned, we must, without delay, have recourse to epispastics, which must be applied directly over the part most affected. These may always be recommended with safety, and they will, generally, produce a very good effect, as they are the most powerful means in removing inflammation, by the transfer of excitement which they produce.

5. In addition to these the use of anodyne fomentations may be admitted, and even insisted on, as they are the most essential remedies in our power to restore the lochial discharge, if it be suppressed (as most usually occurs), or to correct that secretion when vitiated by the continuance of disease. Flannels, wet with warm vinegar and water, united with a small proportion of liquid laudanum, and wrung almost dry, applied to the abdomen, and frequently renewed, have been found to answer this purpose.

Our second indication is to guard against the danger of a relapse, as far as that circumstance shall depend upon the usual occasional or exciting causes, which are enumerated in the third head of causes of this disease: it remains now to premise such diet as shall be light and easy of digestion, and an atmosphere pure, cool, and uncontaminated, which can only be obtained in well-ventilated apartments, where cleanliness in every particular, either as it respects the bed or body linen of the patient, frequent ablution, or the removal of all excrementitious materials from the patient, is assiduously attended to, and carefully observed.

After having removed the excitement of the system, restored the natural evacuations, and removed local affections, we proceed to notice those remedies which are calculated to restore the tone of the system, and to obviate that debility which is induced by the disease; and this is generally

easy to be accomplished: but instances have occurred, and not unfrequently do occur, where the over-exhaustion has been so great as to render the prescriptions of the most experienced medical men ineffectual. The remedies which are generally made use of in order to effect this end, are wine, opium, bark, blisters, steel, bitters, spices, volatile alkali, cordials, and generous diet. These remedies are all calculated to produce the desired effect, provided the system of the patient is not reduced to that degree which renders it unsusceptible of the impressions of medicine.

But notwithstanding all the exertions of the most able physicians, the disease sometimes progresses without the least apparent remission, and assumes the alarming and fatal symptoms which are beyond the power of medicine to arrest. The most common of these are the following, which have already been mentioned in the history of the disease; viz. involuntary evacuation of the fæces, weak pulse, syncope, delirium, together with appearances of gangrene and mortification. All that can be done by the physician under these circumstances is to administer anodynes for the mitigation of the distresses of the patient, and to smooth the avenue to the grave.

Knowing, however, that the symptoms of disease are various, and not unfrequently deceitful, and that patients have oftentimes recovered from this fever contrary to the expectation of the most experienced practitioners, we ought never to relax

our attention while life remains, but be active in the use of every remedy which suggests itself to our minds. By thus persevering we may restore to health many who might otherwise be irrecoverably lost to their families, to their friends, and to society.

THE END.

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